

# Higher Education Job Profiles: A Literature Review of Research Work and ICT Applications

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**Abstract:** The description of the various professions in a standardized form, usually called ‘job profile’ or ‘occupational’ profile’, and their registration in easy to use data bases is an established practice in many developed countries. Some relevant efforts have been attempted in Greece; however in total they were rather fragmentary, without consistency and continuity. In Greek higher technological education which presents currently graduates’ high unemployment rates, both the updating and mapping of the nearly hundred different specializations provided by the numerous departments of the Technological Educational Institutes (TEIs) and the development of a ‘clever’ ICT system are considered as essential. This fully interactive system is the main innovative product of a research project named “Digital guide of higher technological education professions” being implemented through the Operational Program “Education and Lifelong Learning”. The conclusions drawn for an extended literature review show that in countries with highly developed vocational guidance (UK, USA, Canada, Australia) the job profiles’ web sites contain short but comprehensive information, without information overload, are interactive and easy to use and are addressed to specific target groups easy; fresh lyceum graduates, unemployed, as well as working persons seeking another job with better prospects. In most cases an international system of professions’ coding and categorization is implemented. Regarding Greece some relevant bodies such as the Manpower Employment Organization, the National Accreditation Center for Continuing Vocational Training, and the National Organization for the Certification of Qualifications and Career Guidance have dealt extensively with job profiles covering however only a small percentage of the TEIs’ specializations. The TEIs have developed independent job profiles studies for most of the provided specializations; however this work has remained nearly unused, presenting structural deficiencies and needing corrective movements and periodic updating. The current research project aims to cover this gap attempting at the same time to digitize and make this mass of information easily usable and fully accessible to the appropriate target groups.

**Keywords:** *job profile, professional career, HE graduates, professions’ digital map, labour market*

## 1. INTRODUCTION

The vocational guidance of higher education graduates as well as the linking between education and labor market constitute two scientific sectors, which have not been sufficiently searched, particularly in Greece. In fact they are also prime priorities, as are directly related to the reduction of unemployment, which in southern Europe recorded unprecedented rates

above 20% (the annual average value of 2012 is 25% in Greece, 24.3% in Spain, while 10.5% in EE27) [1].

Among the informative tools that are used in the professional orientation and in the career planning and development are the so called *Job Profiles* or *Occupational Profiles*. It is a basic or detailed description of a job (or specialty) with standardized structure way, in most cases recorded in digital data bases, accessed easily and freely through computer applications. The job profile describes any type of information that defines the inputs, process and outputs of any job.

Job profiles' users are lyceum graduates, candidates for HE, students, HE graduates, employment services and organizations. As an example, one of the basic target groups, the students of lyceum, can use the job data bases so that they choose easier and safer their further studies, while HE students or graduates can get informed explicitly about the vocational prospects of their speciality.

The contents are the inputs, the processes and the outputs of a job: required skills & qualifications, experience, salaries, work in public and private sector, self-employment, professional rights, roles & responsibilities, etc

Regarding the organization and access of information, it is usually carried out with relevant software linked to powerful databases and web interface. There are software systems, designed in such a way that they can be used for setting up multiple types of job profiles e.g. a) Job Descriptions (to define the tasks and/or responsibilities per job title) b) Performance Agreements / Contracts (to define the outputs or goals per job title) c) Competence Profile (to define the qualifications and competencies per job title) [2].

Job profiles do not only serve the usual daily users that seek information in order to improve their job position or to plan a personal career, but are also valuable sources for the services or the researchers involved in the structure characteristics of the labor market. Individual professions of each branch, 'reflect' more directly the current status of the respective labor market [3]. Moreover, the detailed definition of professions is necessary to calculate the balance between of supply and demand for them, which is an important criterion for the final selection of the profession [4].

Concerning the job profiles of HE, most well developed countries follow an international system of professions' coding and categorization. Regarding Greece, some relevant bodies such as the Manpower Employment Organization, have dealt with job profiles, but in a fragmentary way. Also the Technological Educational Institutes (TEIs) have developed such professional guides focusing to their graduates' specializations. Nevertheless this work has several gaps and low workability.

The current work is the first stage of a research project, which aims to cover this gap, attempting at the same time to digitize and make this mass of information easily usable and fully accessible to the appropriate target groups. During this first phase an extensive literature review of research work and ICT applications was carried out, which is described in the following sections.

## **2. JOB PROFILES IN EUROPE AND OTHER COUNTRIES**

The carried out literature survey revealed that several countries (such as USA, Canada, Australia, United Kingdom, France, Finland, Germany) have produced various types of job profiles. Nevertheless, despite the practical work that has been done, there is not much published work [5, 6]. The majority of the published work is mainly based on online activities (web pages) to provide information to specific areas of employment or study.

The European Commission held one of the first attempts by drawing the table NACE (Nomenclature Générale des Activités Economiques dans les Communautés Européennes) including the Classification of all economic activities [7]. Generally, the web sites of the job profiles studied have common characteristics, the main ones are as follows [8, 9, 10, 11, 12, 13]:

- Contain basic data, without information overload; they are easy to use and interactive. All descriptions are short and follow a specific standardization: work items, areas or sectors of employment, qualifications, current wages etc.
- Targeted to specific task groups (unemployed University graduates as well as employees looking for a better job).
- Consider as 'job' the job content and not the specialty (degree title) provided by the educational system. That is a particular 'job' which can be covered by neighbouring specialties.
- They apply, as a rule, an international coding system and job classification, which allow comparison of data from different states.

Some case studies for what is in effect in various countries are given below.

The National Occupation Classification (NOC) in Canada contains the structure and the analytical description of 520 professional teams constituting the job market of Canada. A table in the form of poster depicting the classification fundamentally, a list of more than 30,000 job profiles and a CD-ROM make up the complete picture of the NOC. The NOC is updated every five years and the most recent published version is of year 2011 [14].

In UK, the Association of Graduate Careers Advisory Services (AGCAS) has designed an interactive data base related with jobs, work experience, and types of jobs. The user can be browsed with the help of a search engine with the help of selected criteria leading to the desired "wing" of a thematic «library» of the professions. Each job is accompanied by an explicit description of object, work conditions and requirements, salaries, professional development etc [15].

In general, the job profiles' software is developed with the help of tools and simple instructions, so that a user draws up easily and quickly the description of a job for his own needs. For example, clear job descriptions help employees work smarter, and become more effective in their jobs. Additionally, well-written job descriptions help employers to hire the right people and make fair employment decisions [16].

Closely related to the above is the *job specification*. It is a written statement of educational qualifications, specific qualities, level of experience, required physical, emotional, technical and communication skills to perform a job, as well as the involved responsibilities. Both job description and job specification are the two basically pre-requisite that needs the so-called *job analysis*, which is a primary tool to collect job-related data [17].

### 3. JOB PROFILES IN GREECE

In Greece the administration of job profiles despite the large number of relevant efforts, it has been in many cases occasional, limited and without long term support. The main relevant initiatives are summarized below.

The Hellenic Statistical Authority has codified all the existing professions, however without regular update [18]. The Manpower Employment Organization of Greece has uploaded a few years ago, 1450 monographs of professional guides at full analysis. It also installed a search engine in a relevant database, which can be augmented and amended annually depending on the development and changes of the labor market. This site is a valuable information tool for the workplace consultants of Manpower Employment Organization, particularly in individualized intervention, in active vocational guidance and job search techniques [19]. Important in the sector of job profiles is the presence of National Organization for the Certification of Qualifications and Vocational Guidance (EOPPEP, former EKEPIS). In recent years, it has compiled 202 monographs of certified vocational profiles with very detailed documentation. Unfortunately, very few of the professions mentioned (less than 10%) concern specialties from TEI and Universities. The outlines of EKEPIS follow the international practice regarding the structure and coding of professions. The professional profile of a particular specialty of University or TEI is not described directly, but rather a profession (job) that can be practiced by a lot of specialties of graduates [20]. The Pedagogic Institute (through Network Nestor) worked out 250 summarizing

professional monographs creating a proportional database, which however remains un-updated since 2006 [21]. The National Center of Vocational Orientation (EKEP) published in 2008 a guide with a relatively small number (30) of monographs for professions. Most of the professions concern HE graduates, and there are some that can be exercised by graduates from Institutes of Vocational Training (IEK) and Technical Vocational Schools (TEE) [22]. Finally, it is worth mentioning the contribution of the private sector to a more detailed description of the professions in Greece. Individual authors or groups of researchers have issued printed aids addressed mainly to the graduates of secondary education and providing information about the employment prospects of the various Departments of Universities and TEIs [23, 24, 25, 26, 27, 28, 29, 30, 31].

However, only a small percentage of the above mentioned work and electronic data bases concern specializations of the technological sector of higher education. That is why the Career Advisory Services of the Greek TEIs developed during the period 2006-2008 96 independent, analytical job profiles for the corresponding specializations provided by the technological higher education. All these profiles have uniform structure and specifications. So they focus on the professional and academic prospects and not the subject of the specific jobs which may be exercised by the TEIs' graduates. This extensive work has remained nearly unused, presenting structural deficiencies and needing corrective movements and periodic updating.

The covering of this gap is the reason that led our research team to proceed to the next step: i.e. to digitize and make this mass of information easily usable and fully accessible to the appropriate target groups by creating an interactive 'digital guide' of TEIs' professions.

#### **4. CONCLUSIONS**

Comparing the Greek and the international practice in the field of job profiles the following is observed. In Greece the focus is on the specialties provided by the typical educational system, and thus the emphasis is given to the professional rights of each HE department. Internationally (Europe, Australia, Canada and USA) the logic is different: the qualifications, education and skills required from the candidate to exercise a particular job are described and this happens for any employment sector, such as public services, Universities, enterprises, industry etc. This way a graduate is not committed from his studies for the search of work but his overall skills are the ones that will determine if he/she fits to the specific job. Thus, are not created 'professional waterproofs', in other words 'closed professions' and each person having the required skills can claim for a job even if he/she does not have the relevant HE degree.

The literature review and the visit of several relevant web sites containing job profiles revealed that there are significant differences in both the used titles and the specific fields or information that is analyzed. The main influencing factors are the place (country, state or area) of implementation, the time of search, and especially the purpose for which it is each study or research is carried out.

These findings lead to three main conclusions. The analysis of professions should: i) focus on a specific country or geographic area with common socio-economic characteristics, ii) repeated at regular intervals in order to respond to the current labour market situation and iii) concern professions that require similar or equivalent qualifications and degrees with common analysis in order to facilitate the comparison. Such an example are undoubtedly the professions/specialties provided by the institutions of Greek higher education, for which it became evident that are missing both a pooled study, and a web based decision support system aiming to support efficiently youngsters that are about to enter, study at, or have graduated from HE institutions. This is the main aim of the current research project, titled "Digital map of higher technological education professions".

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